

WE CLAIM

1. Digital image processing apparatus for applying pixel-based colour correction to a hue-saturation-based polar representation of pixels of an input image to generate an output
5 image, said apparatus comprising:
 colour correction logic arranged to provide a colour mapping operation defined by a hue alteration amount and a key value associated with each pixel;
 said colour correction logic comprising:
 hue modifying logic for adding a proportion of said hue alteration amount to a hue of
10 each pixel of said input image, said proportion depending on said key value associated with that pixel; and
 saturation modifying logic for modifying a saturation of each pixel in dependence on said hue alteration amount and said key value for that pixel, such that for a key value indicating that only a fraction of said hue alteration amount should be applied to a current
15 pixel, said saturation of that pixel is also modified so that, when expressed with respect to a rectangular chrominance-based colour space, said pixel is moved to a position in that colour space substantially lying on a straight line between an original position of said pixel and a position that said pixel would occupy if said full hue alteration amount were applied.
- 20 2. Apparatus according to claim 1, in which said colour mapping operation is defined by said hue alteration amount and a locus in a colour space of a key value, said colour correction logic being operable to detect said key value at that pixel's position in colour space and to apply said colour mapping operation to that pixel in dependence on said key value.
- 25 3. Apparatus according to claim 1, in which said hue modifying logic comprises a hue data store, addressable by said key value associated with a pixel, said hue data store providing a hue amount to be added to said hue of the current pixel.
- 30 4. Apparatus according to claim 3, being arranged to store hue amount data in said hue data store in respect of each image to be processed.
5. Apparatus according to claim 1, in which said saturation modifying logic comprises a saturation data store, addressable by said key value associated with a pixel, said saturation

data store providing an amount by which said saturation of the current pixel should be altered.

6. Apparatus according to claim 5, being arranged to store saturation amount data in
5 said saturation data store in respect of each image to be processed.

7. Apparatus according to claim 1, in which, for a key value indicating that all of said
hue alteration amount should be added to said current pixel, said saturation modifying logic is
arranged not to alter said saturation of said current pixel.

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8. Apparatus according to claim 1, said apparatus being arranged to process a video
signal comprising a succession of images.

9. A method of digital image processing for applying pixel-based colour correction to a
15 hue-saturation-based polar representation of pixels of an input image to generate an output
image, said method comprising the steps of:

(i) defining a colour mapping operation by a hue alteration amount and a key value
associated with each pixel;

(ii) adding a proportion of said hue alteration amount to a hue of each pixel of said
20 input image, said proportion depending on said key value associated with that pixel; and

(iii) modifying a saturation of each pixel in dependence on said hue alteration amount
and said key value for that pixel, such that for a key value indicating that only a fraction of
said hue alteration amount should be applied to a current pixel, said saturation of that pixel is
also modified so that, when expressed with respect to a rectangular chrominance-based
25 colour space, said pixel is moved to a position in that colour space substantially lying on a
straight line between an original position of said pixel and a position that said pixel would
occupy if said full hue alteration amount were applied.

10. Computer software having program code for carrying out a method according to
30 claim 9.

11. A providing medium for providing software according to claim 10.

12. A medium according to claim 11, said medium being a transmission medium.

13. A medium according to claim 11, said medium being a storage medium.